Post Cesarean Section Caecal Volvulus: Case Report And Literature Review.

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Citation

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Abstract

Caecal volvulus is a rare, but potentially fatal cause of intestinal obstruction. Accurate diagnosis is vital as delay in the surgical treatment of this condition may lead to an increased incidence of gangrene of the caecum and a higher mortality. We report a case of caecal volvolus in a 43 years old female who presented with small bowel obstruction 10 days after a cesarean section. We also review the literature for the clinical and radiological features of the condition.

INTRODUCTION

Caecal volvulus is axial twisting that occurs involving the caecum, terminal ileum and ascending colon. It is responsible for 25%–40% of all colonic volvulus and together with ascending colon volvolus accounts for only 1 per cent of mechanical bowel obstructions. Caecal volvulus after cesarean section is very rare, with only three cases of ileo-caecal volvulus reported in the English literature in the last two decades. We report a case of caecal volvulus in a 43 years old female which occurred 1o days after a cesarean section.

CASE REPORT

A 43 year female, presented to the emergency department at KFMC Riyadh, KSA with severe on and off abdominal colic of two days duration associated with frequent vomiting and constipation. She had a cesarean section 10 days before her presentation and 4 cesarean sections before. On examination she was in pain, mildly dehydrated not jaundiced or anemic. Vital signs were normal. The abdomen was distended; lax and not tender, and bowel sounds were absent. Laboratory investigations showed WBCC of 14.4x10^3. Liver function test, urea and electrolytes were normal. The plain abdominal x ray showed a dilated loop of bowel occupying the right side of the abdomen extending across the mid line to the left with absence of air in the colon in the supine film (figure 1&2) and air fluids levels in the caecum in the erect film. The CT of the abdomen demonstrated the typical bird beak sign (figure 3).

Figure 1

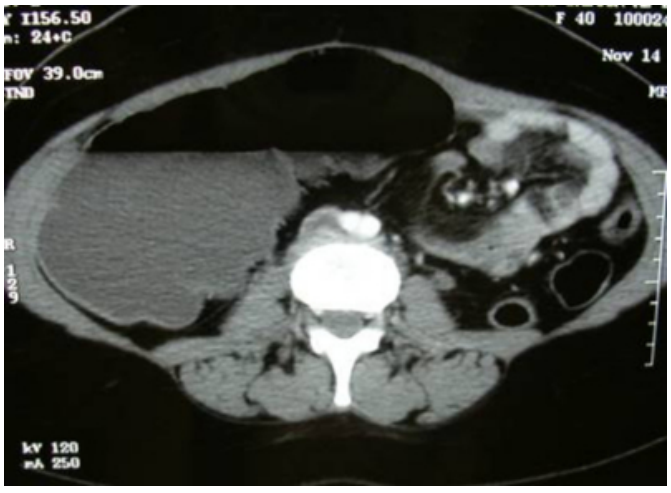
Figure 1: Supine plain x ray of the abdomen showing the dilated caecum occupying the right side of the abdomen extending across the mid line to the left. (Observe absence of air in the remaining colon).

Figure 2

Figure 2: The erect plain x-ray abdomen showing air fluid level in the caecum.

Figure 3

Figure 3: The abdominal CT showing severely dilated caecum with air fluid level with the progressively tapering efferent and afferent bowel loops terminating at the site of torsion demonstrating the bird beak sign.



Diagnosis of caecal volvulus was established and after fluid resuscitation the patient was taken for laparotomy under general anesthesia. Intraoperatively the caecum was found axially twisted and severely distended with mild distention of the small bowel (figure 4). The caecum was untwisted and fixed to the lateral abdominal wall (caecopexy). The patient didn't show signs of recurrence after 4 years of followed up in the outpatient clinic.

Figure 4

Figure 4: Intra operative photograph showing severely dilated caecum and mildly dilated small bowel.

DISCUSSION

Caecal volvulus is axial twisting that occurs involving the caecum, terminal ileum and ascending colon. First noted by Hildanus in the 16th century and later reviewed by Rokitansky in 1837, it is a rare condition with a reported incidence ranging from 2.8 to 7.1 per million people per year(1). It is responsible for 25%–40% of all volvulus involving the colon (2). Caecal and ascending colon volvolus accounts for only about 1 per cent of mechanical bowel obstructions (3, 4).

There are two prerequisites for caecal volvulus to occur: a segment of mobile caecum and ascending colon and a point of fixation about which torsion may occur (5, 6, 7). The mobility results from either incomplete embryologic rotation of the bowel or improper developmental fusion of the mesentery of the caecum and ascending colon with the posterior parietal peritoneum. In addition to the prercsquisite of a freely mobile caccum, several additional predisposing factors have been implicated in the genesis of caecal volvulus, although the relative importance of these factors is not clear (8). These include concomitant acute medical problems, pregnancy, distal colon obstruction and a previous laparotomy (9).

Previous abdominal surgery, resulting in intraabdominal adhesions which could act as a fulcrum for caecal volvulus, has been considered important by several investigators (10, 11).

In the post-operative setting caecal volvulus has been described as a complication following left colectomy, cholecystectomy, gastric resection, incarcerated femoral

hernia repair, appendectomy and various laparoscopic procedures (12-15). It has also been reported following kidney transplantation (16) and nephrectomy (17, 18). Presumably any surgical procedure which might require some degree of medial visceral rotation or disruption of the fusion plane between the caecum and ascending colon with the lateral peritoneum could provide for sufficient mobility to allow caecal volvulus to occur (19).

In female patients previous gynaccological operations may be a more important factor in predisposing to caecal volvulus than appendicectomy, which has been suggested as a major antecedent (9). This may account for the fact that caccal volvulus in western societies is considerably more common in women than in men (9, 20, 11, 21, 22). Caecal volvulus after cesarean section is rare. Three cases of ileo-caecal volvulus post cesarean section have been reported in the English literature in the last two decades (23, 24, and 25). Marren A et al reported a case of caecal volvulus associated with intestinal malrotation immediately following caesarean section (26).

The reasons for the association of caecal volvolus with pregnancy and cesarean section are not clear. Some authors suggested that pregnant patients are at high risk for caecal volvulus due to uterine displacement of the ascending colon (27, 28), together with the fact that caesarean section rapidly increases intra-abdominal space, thereby increasing the likelihood of volvulus (29).

Intestinal volvulus including caecal volvolus is also reported as a rare complication of laparoscopic procedures such as laparoscopic cholecystectomy. Ferguson et al published a literature review of bowel obstruction following laparoscopic procedures in January 2008. Of the 12 reported cases 8 cases followed laparoscopic cholecystectomy, two of them were caecal volvulus (30). Agahi et al report a case of caecal volvulus after laparoscopic adjustable gastric band surgery (31). Similary Wales et al report a case of caecal volvulus in a patient who underwent laparoscopy-assisted sigmoid resection for sigmoid volvulus one year earlier (32).

Accurate diagnosis is vital as delay in the surgical treatment of this condition may lead to an increased incidence of gangrene of the caecum and a higher mortality (33).

As most patients with acute caecal volvulus present with clinical pictures suggestive of intestinal obstruction, abdominal radiography is frequently obtained as the initial diagnostic imaging (2).

Diagnosis can be made by plain abdominal X-ray in more than half the cases on the basis of caecal distention, proximal small bowel distention with air-fluid levels, a gasless distal colon (34), and identification of a characteristic “coffee bean deformity” directed toward the left upper quadrant.

The coffee bean deformity is seen on conventional radiographs or tomograms, as a rounded focal collection of air-distended bowel with haustral creases in the left upper quadrant that resembles a coffee bean.

The dilated caecum usually assumes a 'comma-shape', retains its haustral markings and may be located anywhere within the abdomen but is most frequently seen centrally or occupying the left upper quadrant (33).

However, given the non-specific nature of these radiological findings and the unusual occurrence of caecal volvulus, many of the patients are erroneously given the diagnoses of small bowel obstruction (35).

Barium enema shows lack of filling of the caecum, often with a “beaked” termination of the column of contrast. The use of contrast studies in the diagnosis of caecal volvulus has been debated. It has been argued that such investigations usually serve only to delay definitive surgical treatment (36). Barium enema should not be done when the patient is critically ill or when there is suspicion of gangrene or perforation (9).

Reduction of acecal volvulus by barium enema has been reported and most probably succeeded in some patients. Also fiberoptic colonoscopy has been suggested by Ghazi et al (9, 37) as a means of preoperative decompression of volvulus of the colon occurring proximal to the sigmoid, however in contrast to management of sigmoid volvulus, attempts to treat acute caecal volvulus by non-operative decompression could be dangerous (9).

CT is not only a valuable diagnostic technique in diagnosing caecal volvulus and its complications, but it is also useful in distinguishing the three pathophysiological types of caecal volvulus (axial torsion, loop type and caecal bascule) (38).

Recognition of the CT signs of caecal volvulus is critical because the findings at clinical examination are often vague and because CT scan is usually the imaging technique of choice for patients presenting with acute abdominal pain (39). CT reveals the presence and location of the volvulus and gives the added benefit of allowing early identification of potentially fatal complications, such as ischemia and

perforation. Three-dimensional (3D) reconstructions may further improve diagnostic capabilities by allowing visualization of the entire bowel in a single image (40).

The ‘‘coffee bean’‘, ‘‘bird beak’‘, and ‘‘whirl’‘ signs are three of the common CT findings associated with acute caecal volvulus (2). The ‘‘coffee bean’‘ sign generally refers to an axial view of a dilated caecum filled with air and fluid that may be visualised anywhere within the abdominal cavity. The ‘‘bird beaks’‘ are images correlating with the progressively tapering efferent and afferent bowel loops terminating at the site of torsion. The ‘‘whirl sign’‘ is a description applied to the CT image of a soft tissue mass with internal architecture containing swirling strands of soft tissue and fat attenuation. In addition to the above described pathoneumonic CT signs, visualisation of a gas filled appendix has been described as a finding associated with caecal dilatation from caecal volvulus(41).

Caecal volvulus is an emergency pathology, requiring surgical treatment. Right hemicolectomy is the treatment of choice in presence of caecal gangrene. There is considerable controversy regarding the preferred operative management of caecal volvulus in the absence of gangrenous bowel.

In presence of such diversion of opinions Consorti et al suggested that the most appropriate operative strategy for a given patient can be determined only by the operating surgeon after taking into consideration the surgical expertise, patient’s physiological status, viability of the involved intestines, the potential perioperative morbidity and mortality, and the risk of volvulus recurrence (2).

Reduction of the volvulus as the only operative maneuver without caecopexy was reported to be associated with high recurrence rate (42).

There is conflicting reports about the role of caecopexy in management of caecal volvulus in absence of bowel gangrene. While some authors (43) advocate resection for all cases of caecal volvulus regardless bowel viability, others (44) advocate that resection should not be performed in patients with viable colon as it has been associated with a twofold mortality rate and increased morbidity as compared with caecopexy.

O'Mara et al (9) performed caecopexy in 18 patients in their series with no operative deaths and a low rate of postoperative complications. There were no recurrences among the all the 18 patients during a follow-up that averaged 4.8 years. They concluded that caecopexy can be performed safely and quickly without opening the bowel and with low recurrence rate. Their result support caecopexy as the preferred operative management of caecal volvulus. Resection appears to be unnecessary except in the presence of gangrenous bowel.

SUMMARY

Caecal volvulus is axial twisting that occurs involving the caecum, terminal ileum and ascending colon. It is a rare, but potentially fatal, cause of intestinal obstruction. Caecal volvulus after cesarean section is very rare, with only three cases of ileo-caecal volvulus reported in the English literature in the last two decades.

Preoperative diagnosis depends on high index of suspicious as most patients with acute caecal volvulus present with clinical pictures suggestive of intestinal obstruction. Diagnosis can be made by plain abdominal X-ray in more than half the cases. The increasing use of CT scan in investigating patients with acute abdomen allowed more and more cases of caecal volvulus to be diagnosed pre-operatively. The three CT findings associated with acute caecal volvulus ‘‘coffee bean’‘, ‘‘bird beak’‘, and ‘‘whirl’‘ signs are pathoneumonic. Caecal volvulus is an emergency pathology, requiring urgent surgical treatment. Right hemicolectomy is the treatment of choice in presence of caecal gangrene. There is considerable controversy regarding the preferred operative management of caecal volvulus in the absence of gangrenous bowel. Opinions were divided between right hemicolectomy and caecopexy. We belief that surgical decision should be based on many factors including patient’s general condition, presence or absence of bowel gangrene, associated co morbid factors and the potential perioperative morbidity and mortality.

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